



Item .....
Meeting ..... 2020 May 26

## COMMITTEE REPORT

**TO:** CHAIR AND MEMBERS  
PLANNING AND DEVELOPMENT COMMITTEE

**DATE:** 2020 May 20

**FROM:** DIRECTOR PLANNING AND BUILDING

**FILE:** 42000 20

*Reference: Bylaw Text Amdmt*

**SUBJECT: PROPOSED ZONING BYLAW AND BUILDING BYLAW  
AMENDMENTS – FENCES AND RETAINING WALLS**

**PURPOSE:** To propose text amendments to the Burnaby Zoning Bylaw and Building Bylaw regarding fences and retaining walls.

### RECOMMENDATIONS:

1. **THAT** Council be requested to authorize the preparation of a bylaw amending the Burnaby Zoning Bylaw to update requirements with respect to fences and retaining walls, as outlined in Section 3.0 of this report, for advancement to a future Public Hearing.
2. **THAT** Council be requested to authorize the preparation of a bylaw amending the Building Bylaw to impose requirements with respect to fences and retaining walls, as outlined in Section 4.0 of this report.

## REPORT

### 1.0 BACKGROUND INFORMATION

As part of the ongoing review of the Burnaby Zoning Bylaw, which usually takes place in the context of development enquiries and discussions regarding the intent of the Zoning Bylaw and the general need to update the Zoning Bylaw, text amendments are brought forward from time to time. These text amendment reports are submitted in order to provide clarification and improvements to the wording of the Zoning Bylaw, and to respond to changes in related legislation and changes in forms of development, land uses and social trends. The requirements relating to fences and retaining walls are being brought forward for review at this time.

Section 6.14 of the Zoning Bylaw which regulates the configuration of fences, walls, and other structures not being a building, has not been reviewed in detail since 1965. These provisions require a thorough review to ensure that they meet today's design guidelines for screening and security purposes, as well as to improve the streetscapes and the visual impact of fences and retaining walls on neighbouring properties.

The Building Bylaw specifically excludes fences and retaining walls from the permitting process. While this exclusion is appropriate for the construction of fences and smaller retaining walls incorporated in residential landscaping, given current development practices on sloped sites, it has

resulted in the unregulated construction of significant earth retaining structures, some of which have been undertaken without the benefit of appropriate engineering.

To address the above noted issues, a review of the Zoning Bylaw and the Building Bylaw regarding the construction of fences and retaining walls is necessary. As part of this review, staff conducted a review of best practices and other municipalities' Zoning and Building Bylaws including Coquitlam, Maple Ridge, Pitt Meadows, New Westminster, and The District of North Vancouver. All Bylaws regulate retaining walls and fences, and require permits for the construction of retaining walls exceeding a certain height. A number of these jurisdictions, particularly those municipalities with topography similar to that of Burnaby, provide the public with retaining wall guidelines in order to enhance public understanding of how their bylaws are applied.

Staff also reviewed the "Professional Practice Guidelines - Retaining Wall Design" issued by the Engineers & Geoscientists BC on geotechnical and structural aspects of retaining walls in order to address geotechnical and structural safety concerns.

As an outcome of this review, it is recommended that:

- Section 6.14 of the Zoning Bylaw be divided into two new sections: Section 6.14.1 regulating retaining walls, and Section 6.14.2 regulating fences and free-standing walls;
- the fence and retaining wall requirements of the Zoning Bylaw be updated; and,
- the Building Bylaw be amended to require a permit for certain types of retaining walls, in order to address safety concerns.

This report reviews the Zoning Bylaw and the Building Bylaw requirements related to fences and retaining walls, and recommends a number of amendments to these regulations.

## 2.0 POLICY

The advancement of the proposed Zoning Bylaw and Building Bylaw amendments align with the following goals and sub-goals of the Corporate Strategic Plan:

- **A Safe Community**
  - Crime prevention and reduction – Ensure citizens and businesses feel safe in our community.
- **A Connected Community**
  - Partnership –Work collaboratively with businesses, educational institutions, associations, other communities and governments.
- **A Healthy Community**
  - Healthy Environment – Enhance our environmental health, resilience and sustainability.

### **3.0 PROPOSED ZONING BYLAW TEXT AMENDMENTS**

#### **3.1 Issue**

Section 6.14 of the Zoning Bylaw regulates the construction of fences, walls or other structures not being a building. This Section was originally introduced to the Zoning Bylaw in 1965, and except for minor revisions has not been amended substantially since. The requirements related to retaining walls are limited and do not provide explicit provisions to control dimensions and design of retaining walls. In addition, under the current Building Bylaw, no formal permitting process is in place for retaining walls. This combination of factors has resulted in the construction of large and imposing retaining walls that negatively impact adjacent streetscapes, and neighbouring properties' views and privacy.

The Planning and Development Committee (PDC) had previously received a delegation with respect to the construction of sizeable retaining walls on private property within the City and referred the matter to staff for a further review. Section 3.0 of this report reviews the Zoning Bylaw requirements related to fences and retaining walls, and recommends a number of amendments to these regulations.

#### **3.2 Discussion**

The configuration of fences, walls and other structures not being a building is regulated by Section 6.14 of the Zoning Bylaw. The terms “fence” and “wall” refer to space enclosing structures that are not part of a building, and are used for security, privacy or screening purposes on a property. The term “other structure not being a building” refers to construction such as retaining walls, trellises, outdoor play area equipment, and similar construction. In applying the current regulations, “retaining walls” have been distinguished from “walls” as they enclose spaces, as well as perform the geotechnical function of retaining terrain.

In order to address fences and retaining walls issues, it has become apparent that a thorough review of Section 6.14 of the Zoning Bylaw is necessary with the purpose of:

- 1) simplifying the Zoning Bylaw pertaining to fences and retaining walls;
- 2) improving consistency in the application of the Zoning Bylaw throughout the City;
- 3) updating the regulations pertaining to fences and retaining walls in order to maintain an improved streetscape, ensuring safety and privacy, and responding to the needs of different uses;
- 4) regulating the design of retaining walls to prevent the occurrence of large and imposing retaining walls; and,
- 5) addressing safety concerns related to retaining wall construction.

### **3.2.1 Retaining walls**

#### **3.2.1.1 Current Zoning Bylaw Requirements for Retaining Walls**

The Burnaby Zoning Bylaw does not provide explicit regulations for the construction of retaining walls. In the absence of such regulations, Section 6.14(1) has been interpreted to provide general direction governing the construction of retaining walls. Section 6.14(1) of the Bylaw states that:

“Any fence, wall or other structure not being a building, which exceeds the height limitations specified in this section shall comply with the height and setback requirements prescribed for buildings within the zoning district in which it is located.”

A retaining wall is considered an “other structure not being a building”. Retaining wall height restrictions therefore correspond to the height limitations set for fences and free-standing walls. Where a retaining wall is located within the required yards specified for the zoning district in which it is located, its height is restricted to:

- a maximum of 1.07 m (3.51 ft.) where it is located in a required front yard;
- a maximum of 1.8 m (5.91 ft.) where it is located to the rear of a required front yard in all districts, with the exception of the C4 Service Commercial, and M Industrial Districts;
- a maximum of 2.4 m (7.87 ft.) where it is located to the rear of a required front yard in the C4 and M Districts;
- a maximum of 1.8 m (5.91 ft.) where it is located anywhere on a lot in the R8 Residential District;
- in the R Residential Districts, where a retaining wall is located on a rear property line abutting a side line of an adjoining lot, the retaining wall’s height may not exceed the maximum permitted height on a side line of the adjoining lot, at the point of abutment; and,
- where a retaining wall is located outside of the required yards specified for the zoning district in which it is located, its height is limited to the maximum permitted building height in that zoning district.

The addition of specific regulations to the Zoning Bylaw concerning the construction of retaining walls has become necessary for the following reasons:

- lack of clarity due to absence of an explicit reference to retaining walls;

- absence of explicit regulations regarding the siting of multiple adjacent retaining walls, materials used in the construction of retaining walls, and the method to measure retaining wall height;
- an increase in the construction of substantial retaining walls, and combination of retaining walls and fences with substantial height, which can overshadow neighbouring properties, and degrade the overall character and aesthetics of neighbourhoods; and,
- an increase in the use of retaining walls in the construction of buildings and infrastructure.

Accordingly, it is recommended that a new Section 6.14.1 be established to regulate retaining walls, and the following regulations be included in this section of the Zoning Bylaw:

### ***3.2.1.2 Proposed Zoning Bylaw Requirements for Retaining Walls***

#### **Retaining wall height**

To maintain human-scale in the construction of retaining walls, and to prevent the location of retaining walls that overshadow neighbouring properties, it is recommended that retaining walls located anywhere on a property shall not exceed a maximum height of 1.2 m (3.94 ft.). It is generally recognized that it is easy and safe to construct retaining walls measuring 1.2 m or less in height without an engineered design.

Given different terrain throughout the City, the maximum 1.2 m (3.94 ft.) height may not be sufficient in many developments. Considering that currently there is no mechanism to vary the height of retaining walls outside of the CD Comprehensive Development rezoning process, it is recommended that retaining walls that are a condition of subdivision approval, or provide exclusive access or light to a basement or cellar be exempted from the proposed retaining wall maximum height requirement. It should be noted that retaining walls exceeding 1.2 m (3.94 ft.) due to steep terrain, or other siting restrictions, may be permitted through a Board of Variance application subject to the proponent demonstrating a hardship.

Should Council adopt the recommended Zoning Bylaw amendments, the existing retaining walls exceeding 1.2 m (3.94 ft.) in height which were constructed with a Building Permit would become legally non-conforming structures, and subject to the applicable provisions of the Local Government Act.

Where a retaining wall is required to exceed 1.2 m (3.94 ft.) in height, terracing of the retaining wall with a minimum required horizontal distance between each wall segment shall apply. The minimum required horizontal distance shall be equal to the height of the adjacent retaining wall with a greater height, which results in an average incline of not more than forty five degrees (45°). The terracing requirement will ensure that combinations of multiple retaining walls will not unduly overshadow neighbouring properties or streets.

According to this requirement, a retaining wall with a greater height is required to have a greater horizontal distance from the adjacent wall segment. According to the “Professional Practice Guidelines - Retaining Wall Design” issued by the Engineers & Geoscientists BC, it is generally recognized that a slope of 45° is deemed stable without an engineered design.

It is further recommended that the horizontal distance between retaining walls be suitably landscaped and maintained. This requirement is to reduce the visual significance of multiple adjacent retaining walls by adding natural landscape features to this combination. This regulation also requires that the horizontal distance between adjacent wall segments be relatively level, given that a sloped ground supported by a retaining wall will increase the overall height of the retaining wall where multiple retaining walls are combined.

#### **Method to measure retaining wall height**

To improve consistency in application of the retaining wall regulations, it is necessary to define a method to measure the height of retaining walls.

It is recommended that retaining wall height be measured from the lower of natural or finished grade at the base of the retaining wall to the surface of the ground or water which it supports. Accordingly, the height of the exposed face of a retaining wall is considered retaining wall height. Where terracing is required, each retaining wall segment shall be measured separately and not exceed a maximum height of 1.2 m (3.94 ft.). Terraced retaining walls steeper than the ratio of 1 to 1 vertical to horizontal would be considered a single retaining wall for the purpose of determining retaining wall height.

#### **Definition of retaining wall**

Currently, the Zoning Bylaw does not define the term “retaining wall.” To clarify the application of the new Section 6.14.1, and to minimize confusion in the interpretation of this section, it is recommended that a definition of “retaining wall” be added to Section 3.0 of the Zoning Bylaw. The proposed definition will differentiate a retaining wall from a fence, given that a retaining wall holds back earth, or water in the case of landscaping ponds or some forms of swimming pools, while a fence provides screening and enclosure.

Generally a retaining wall is a vertical or near vertical structure constructed of reinforced concrete, precast concrete such as Allan block or lock block, wood or rocks. Some retained soil systems may use various reinforced soil technology instead of a constructed retaining wall structure to stabilize slopes. It should be noted that these retained soil systems will also be subject to the retaining wall requirements of the Zoning Bylaw.

Accordingly, it is recommended that the term “retaining wall” be defined as “a structure, not being a building, designed to hold back, stabilize or support water, soil, rocks, or similar geotechnical materials.”

Swimming pools and landscaping ponds contain retaining structures which hold back water, and therefore, shall comply with the retaining wall requirements of the Zoning

Bylaw. However, only swimming pools with exposed walls have visual impacts on neighbouring properties and streetscapes. Accordingly, it is recommended that only swimming pools with exposed retaining structures be subject to the retaining wall requirements of the Zoning Bylaw. This recommendation would exempt in-ground swimming pools or landscaping ponds from the retaining wall requirements of the Zoning Bylaw.

### **3.2.2 Fences and free-standing walls**

#### ***3.2.2.1 Current Zoning Bylaw Requirements for fences and free-standing walls***

Section 6.14 of the Zoning Bylaw regulates the erection of fences and free-standing walls throughout the City. The fencing regulations of the Zoning Bylaw require that:

- with the exception of vision clearance area, fences or free-standing walls shall not exceed 1.07 m (3.51 ft.) in height in a required front yard, and 1.8 m (5.91 ft.) to the rear of a required front yard, with the exception of the C4 and M Districts where fence height may increase to 2.4 m (7.87 ft.) where it is located to the rear of a required front yard;
- in the R8 District, fences or free-standing walls not exceeding 1.8 m (5.91 ft.) in height may be located in any required yard, subject to the vision clearance requirements of the Zoning Bylaw;
- fences or free-standing walls located outside of the required yards shall not exceed the prescribed building height within the zoning district in which they are located;
- in the R Districts, fences or free-standing walls located on a rear property line abutting neighbouring property's side line shall not exceed the fence height permitted on the side line of the neighbouring property at the point of abutment;
- open mesh or chain link fences not exceeding 3.5 m (11.48 ft.) in height may be erected anywhere on cemeteries, public playgrounds, parks, playfields, elementary or high school areas, and in the M Districts; and
- the height of a fence or free-standing wall is measured from the average grade to the highest point of the structure within 900 mm (2.95 ft.) of both sides of such fence or free-standing wall. An exception to this requirement is a fence erected above a retaining wall on a property line, where the 900 mm (2.95 ft.) beyond the retaining wall is not included in the calculation. Where a fence is erected above a retaining wall, that portion of a retaining wall which projects above the surface of the ground which it supports is considered a fence.

### ***3.2.2.2 Proposed Zoning Bylaw Requirements for fences and free-standing walls***

In general, the current fence height requirements of the Zoning Bylaw within the required yards seem to be adequate as they provide privacy to the rear of the required front yards, while maintaining a consistent human-scale streetscape along the properties' frontage by requiring an appropriate fence height. However, to add clarity to the Zoning Bylaw, improve consistency in application of the Zoning Bylaw, and meet today's design objectives, the following amendments to the new Section 6.14.2, regulating fences and free-standing walls are recommended:

#### **Maximum height of fences and free-standing walls outside of the required yards**

According to Section 6.14(1) of the Zoning Bylaw, any fence or wall exceeding the height limitations specified in Section 6.14 shall comply with the height and setback requirements prescribed for buildings within the zoning district in which it is located.

The construction of fences and free-standing walls with the same height as the principal building outside of the required yards visually impact the neighbouring properties and streetscapes, particularly in residential areas where the required yards are not adequate to alleviate the imposing impacts of such structures. To maintain human-scale in construction of these structures, and reduce their imposing impacts on adjacent properties and streetscapes, while meeting the screening and enclosure purposes, it is recommended that in all districts, with the exception of M Districts, all fences located to the rear of front yard shall comply with the required fence height within the yards to the rear of front yard.

The exception of the M Districts from the above noted recommendation is to allow the construction of adequate screening around loading areas for security and aesthetic purposes.

If Council adopts the proposed recommendation, fence height to the rear of the required front yard will be limited to 1.8 m (5.91 ft.) in all zoning districts, except the C4 and M Districts. Fence height to the rear of the required front yard in the C4 and M Districts shall not exceed 2.4 m (7.87 ft.), excluding the areas outside of the required yards in the M Districts where the fence height shall be limited to the maximum height prescribed for principal buildings within the zoning district in which it is located.

#### **Maximum height of arbors, archways, and gates**

Section 6.14(5)(a) of the Zoning Bylaw requires that fences or walls, excluding screening and outdoor play area enclosures located in a required front yard shall not exceed 1.07 m (3.51 ft.) in height. Section 6.14(5)(b) limits fence or wall height to a maximum height of 1.8 m (5.91 ft.) where it is located to the rear of a required front yard in all districts other than the C4 and M Districts. Arbors, archways and gates are generally greater than 1.8 m (5.91 ft.) in height and therefore, are effectively prohibited by the Zoning Bylaw. It is desirable to permit these structures as they improve streetscapes by defining human-scale entrances to properties along the street.



It is recommended that arbors, archways and gates be exempted from the proposed fence height requirement of the Zoning Bylaw, similar to the current exemption for outdoor play area enclosures. Furthermore, to prevent the construction of imposing entrances which degrade the streetscapes' human-scale, particularly in residential neighbourhoods, it is recommended that arbors, archways, and gates be limited to a maximum height of 2.6 m (8.53 ft.) and a maximum width of 1.8 m (5.91 ft.). This provision would only apply to structures which serve as an entrance to a property, and does not include any attached structure to such entrance which provides enclosure or screening on any other part of the property.

**Storage yards' screening in A Districts**

Section 6.15(2)(b)(i) of the Zoning Bylaw requires that in A, C4 and M Districts, any part of a lot used as an outdoor storage area shall be enclosed by a solid 2.4 m (7.87 ft.) high screening on any side not facing directly upon the principal building. The outdoor storage area in the A, C4 and M Districts is not permitted in a required front yard or any required yard abutting a lot in an R or RM Multiple Family Residential Districts. To meet the screening requirement, Section 6.14(5)(c) allows for an increased fence height to a maximum of 2.4 m (7.87 ft.) where it is located to the rear of the required front yard, in the C4 and M Districts. However, in other districts, including A Districts, such fences or walls may not exceed 1.8 m (5.91 ft.) in height.

Exclusion of the A Districts from Section 6.14(5)(c) precludes the construction of a 2.4 m (7.87 ft.) high screening which encloses outdoor storage areas in the A District, as required by Section 6.15(2)(b)(i) of the Zoning Bylaw. To address this issue, it is recommended that in the A Districts, fences or free-standing walls not exceeding 2.4 m (7.87 ft.) in height be permitted to the rear of a required front yard, similar to the C4 and M Districts.

**Maximum height of structures not being a building, other than fences and retaining walls**

Section 6.14(1) of the Zoning Bylaw stipulates that "structures not being a building" shall comply with the required fence height where they are located within the required yards, and with the prescribed building height where located outside of the required yards. The Zoning Bylaw defines "structure" as anything constructed or erected, the use of which requires location on the ground or attachment to something having location on the ground. "Structures not being a building", other than fences and retaining walls, may include a variety of structures constructed for different purposes, including:

- trellises, fish ponds, flag poles, or similar landscape features;
- exterior heating and cooling equipment, heat pumps, emergency generators, swimming pools and their accessory heating and filtration equipment, and similar equipment providing accessory services for the operation of a building; and

- storage tanks, outdoor play area equipment, and similar structures that are ancillary to the principal use of a building or property.

The new Sections 6.14.1 and 6.14.2 of the Zoning Bylaw are intended to only regulate fences and retaining walls. Therefore, it is recommended that the provision pertaining to height and location of the structures not being a building, other than fences and retaining walls, be moved to other sections of the Zoning Bylaw regulating accessory buildings and structures. The recommended bylaw amendments related to structures not being a building, other than fences and retaining walls, are as follows:

- structures not being a building have different forms and sizes, many of which may have imposing impacts on adjacent properties and streetscapes, such as storage tanks, and some accessory service equipment. In addition, some of these structures, such as emergency generators, and heating and cooling equipment may become a nuisance to neighbouring properties due to noise, vibration and emission of exhaust. The required yards, especially in the residential neighbourhoods, are not adequate to mitigate the visual, noise and vibration impacts of these structures. To maintain a maximum height that is consistent with the prescribed fence height within the required yards, and to minimize any imposing impacts on the neighbouring properties, it is recommended that Section 6.2(2) of the Zoning Bylaw be amended by restricting the location of any non-building structures, other than fences and retaining walls, within the required front and side yards, in all districts. This recommendation is in line with the current requirement of the Zoning Bylaw restricting the location of accessory buildings within the required front and side yards.
- restricting the construction of any non-building structures, other than fences and retaining walls, within the required front and side yards will restrict the location of utility, fire and servicing equipment where their location is required within front yards. Section 6.12 of the Zoning Bylaw specifies the structures which may project into the required yards. To permit the location of utility, fire and servicing equipment in any required yard where it is necessary, it is recommended that this equipment be added to this section of the Zoning Bylaw.
- Section 6.12 of the Zoning Bylaw specifies accessory structures and features which may project into required yards, including arbors, trellises, monuments and similar landscape features. To ensure these structures will not have an imposing impact on adjacent properties and streetscapes, it is recommended that a new Section 6.6(1)(e) be added to the Zoning Bylaw requiring that the height of such projections shall comply with the fence height requirements of the zoning district in which they are located.
- the current Section 6.14(1) of the Zoning Bylaw requires that a structure not being a building located outside of a required yard shall comply with the prescribed building height within the zoning district in which it is located. In general,

structures not being a building are accessory in nature. To ensure these structures will not have an imposing impact on the neighbouring properties, given the required yards depths in the R and RM Districts, it is recommended that a new Section 6.6(2)(h) be added to the Zoning Bylaw restricting the height of such structures to 4.6 m (15.09 ft.), in line with the required height of accessory buildings in these districts. It should be noted that such height restriction is not recommended in the A, C, M, and P Districts to allow the location of mechanical and operational equipment, storage tanks, and other accessory service facilities with a wide range of height requirement, outside of the required front and side yards.

#### **Fences on school sites and public parks**

Section 6.14(6) of the Zoning Bylaw states that open mesh or chain link type fences not exceeding 3.5 m (11.48 ft.) in height may be erected anywhere on cemetery, public playground, park, playfield, elementary or high school areas, and in the M Districts.

In the absence of a definition for playground or playfield, and to simplify the Zoning Bylaw, it is recommended that the terms “public playground”, “park”, and “playfield” be replaced with the term “public park”. It is also recommended that the term “elementary or high school areas” be replaced with the term “schools”. These recommendations are to ensure that a maximum 3.5 m (11.48 ft.) high open mesh or chain link fence may be located anywhere on a school site, or in a public park.

Furthermore, it is recommended that open mesh or chain link type fences up to a maximum height of 3.5 m (11.48 ft.) be permitted in the P Districts to allow the construction of a security fence, where it is needed. Examples of such uses are police stations, public services and utilities which are outright permitted uses in the P Districts.

The addition of barbed wires, razor wires, or similar materials to open mesh or chain link fence shall be permitted for security purposes in the M Districts, or for correctional institutions permitted in the P7 District.

#### **Fences on sports fields**

Currently, fences enclosing sports fields, golf courses, tennis courts, and similar uses are limited to a maximum height of 1.07 m (3.51 ft.) in a front yard, 1.8 m (5.91 ft.) to the rear of the required front yard, and to a maximum height prescribed for a principal building where located outside of the required yards. These fences generally provide an enclosure around the area used for sports to ensure the safety of pedestrians or cars using the adjacent streets or properties. Considering that the height of such fences can vary depending on the type of sport, size of the facility, proximity of the facility to the neighboring properties and roads, and age and skill level of players, it is recommended that fences which delineate the area used as sports fields, golf courses, golf driving ranges, tennis courts and similar uses be exempted from the fence height requirements of the Zoning Bylaw. The recommended exemption will allow a flexible fence height that meets the needs of different sports facilities.

### **Fence material and design patterns**

Currently, Section 6.14 of the Zoning Bylaw does not regulate materials used in the construction of fences or walls. This lack of regulation can result in the construction of sizable blank concrete walls where a fence is located above a retaining wall, and both are made of blank concrete blocks. This concern is exacerbated under the current Zoning Bylaw as the combined height of a fence and retaining wall may be increased up to 2.14 m (7.02 ft.) where located in a front yard, 3.6 m (11.8 ft.) where located to the rear of a front yard, in all districts excluding the C4 and M Districts, and 4.8 m (15.75 ft.) where located to the rear of the front yard in the C4 and M Districts.

In order to improve the aesthetics of such combined structures, it is recommended that different materials and design patterns be used in the construction of a combined fence and retaining wall. This requirement will result in visually dissimilar wall sections with less imposing impacts on neighbouring properties or adjacent streetscapes.

Furthermore, barbed wire, razor wire or similar materials with sharp projections may be used on a property where its use requires further protection and security, such as on industrial properties, or for correctional institutions. As such, to limit the use of such materials which present a safety hazard to residents, particularly in residential neighbourhoods, it is recommended that these materials only be permitted in the M Districts, or for correctional institutions.

### **Fences on the rear lot line in the R Districts**

Section 6.14(5)(d) of the Zoning Bylaw requires that in the R Districts, where the rear line of a lot abuts a side line of an adjoining lot, the fence height on such rear lot line may not exceed the height permitted on the adjacent side line, at the point of abutment. This requirement is to ensure that in such circumstances, fence height located on a rear lot line is equal to the fence height located on the side lot line of the adjoining lot, to prevent the construction of an imposing fence. However, this requirement may limit the fence height to a maximum of 1.07 m (3.51 ft.) for a portion of the rear yard abutting the adjoining lot's front yard. As such, to provide adequate enclosure and privacy along the rear lot lines of all properties, it is recommended that Section 6.14(5)(d) of the Zoning Bylaw be repealed in its entirety. Should Council adopt this recommendation, fences located on the rear lot line of all single and two family residential properties may not exceed a height of 1.8 m (5.91 ft.), regardless of the orientation of such a property.

### **Definition of "fence"**

Currently, the Zoning Bylaw does not define the term "fence or wall". In the absence of a definition, Section 6.14 has been used to regulate the location and height of the structures providing enclosure and screening on properties. However, to clarify the application of

Section 6.14, and to minimize confusion in interpretation of the Zoning Bylaw, it is recommended that the definition of “fence” be added to Section 3 of the Zoning Bylaw.

It is recommended that the term “fence” be defined as “a structure, not being a building, used as an enclosure or for screening purposes around all or part of a lot.” The proposed definition recognizes a fence as a structure that provides enclosure and screening, and includes any free-standing wall that fulfills this same function. Accordingly, it is recommended that the term “wall” be removed from any section of the Zoning Bylaw where it is associated with the term “fence”, to avoid repetition.

Furthermore, it is recommended that the definition of “structure” be amended in line with the proposed definition of “fence”. Section 3 of the Zoning Bylaw defines “structure” as anything constructed or erected, the use of which requires location on the ground or attachment to something having location on the ground, with the exception of fences and walls that are less than the maximum fence height permitted in any district. As such, in order to consider all fences as a structure, it is required that the exclusion of fences with height less than the maximum permitted height be removed from the definition of “structure.” It should be noted that it is not clear why fences and walls were specifically excluded from the definition of “structure” which was originally introduced to the Zoning Bylaw in 1965, and has not been amended since then.

#### **Fence height in the R8 Residential District**

Section 6.14(5)(e) of the Zoning Bylaw states that fences not exceeding 1.8 m (5.91 ft.) in height may be located anywhere on a lot that is zoned R8 District. The R8 District is one of the residential districts which permits the construction of single and two family dwellings, as well as townhouse dwellings. Generally, single and two family dwellings are permitted as an outright permitted use in any R and RM Districts, and townhouse dwellings are permitted in any RM Districts as well as in the R8 District. In the R and RM Districts, other than the R8 District, fences may not exceed 1.07 m (3.51 ft.) in height in a required front yard, and 1.8 m (5.91 ft.) to the rear of a required front yard.

It should be noted that it is not clear why in the R8 District, fence height in a front yard is not consistent with the permitted fence height in other R and RM Districts where single and two family dwellings and townhouse dwellings are similarly permitted. To simplify the Zoning Bylaw and improve consistency in application of the Zoning Bylaw, it is recommended that Section 6.14(5)(e) of the Zoning Bylaw be repealed in its entirety. Should Council adopt this recommendation, any fence in the required front yard in the R and RM Districts may not exceed a maximum height of 1.07 m (3.51 ft.).

### **3.2.3 Related Zoning Bylaw Amendments**

#### **Vision clearance at intersections**

Section 6.13(1) of the Zoning Bylaw requires that no fence, wall or structure other than a permitted street canopy in a C2, C3 or C4 District or a permitted principal building shall

be erected to a greater height than 1.07 m (3.51 ft.) in vision clearance areas. The purpose of this Section is to minimize the obstruction of vision clearance, which is the area bounded by intersecting lot lines at a street corner or a lane corner, to ensure safe maneuvering of vehicles.

Should Council adopt the definitions of “fence” and “retaining wall” as “a structure not being a building”, it is recommended that Section 6.13(1) of the Bylaw be amended by replacing the term “no fence, wall or structure” with the term “no structure” to add clarity to the Zoning Bylaw and simplify its reading. As such, the term “structure” will include anything that is defined as a structure in the Zoning Bylaw, including fences or retaining walls.

**Exclusion of fences or retaining walls from a number of sections of the Zoning Bylaw**

Currently, “fences and walls that are less than the maximum fence height permitted in any district” are excluded from the definition of “structure” in Section 3 of the Zoning Bylaw. Following the addition of a definition for “fence” and “retaining wall” as a “structure,” further amendments to a number of sections of the Zoning Bylaw would be required to avoid subjecting fences and retaining walls to the same regulations as other structures where it is not desirable. Accordingly, it is recommended that the term “excluding fences and retaining walls” be added after the term “structures” in the following sections of the Zoning Bylaw:

- definition of “lot coverage” in Section 3 of the Zoning Bylaw: the Zoning Bylaw defines “lot coverage” as the combined area covered by all buildings and structures on the lot, excluding a number of projections such as bay windows, sun shades, balconies and uncovered swimming pools. Fences are essentially for screening, and retaining walls are landscape features which are not intended to count towards lot coverage, similar to the excluded building projections.
- definition of “building, completely enclosed” in Section 3 of the Zoning Bylaw: the Zoning Bylaw defines “completely enclosed building” as “a building separated on all sides from the adjacent open spaces, or from other buildings or structures, by a permanent roof and by exterior walls.” The term “structure” under this definition is not intended to include any landscape or screening features, or retaining walls.
- Section 6.6(1)(a) of the Zoning Bylaw restricts the construction of an accessory building or structure on any lot prior to the construction of a principal building or structure, or establishment of a principal use. This section is not intended to prohibit the construction of a security fence, screening, or a retaining wall on a property prior to construction of a principal building.
- Section 6.6(1)(b) of the Zoning Bylaw states that an accessory building or structure attached to a principal building shall comply with the requirements of the Zoning Bylaw applicable to the principal building. This section is not intended to subject fences and retaining walls to the principal building requirements of the Zoning

Bylaw. Should Council adopt the recommendations of this report, fences and retaining walls shall comply with the new Sections 6.14.1 and 6.14.2 of the Zoning Bylaw.

- Section 6.16 of the Zoning Bylaw requires that any building or structure, except street canopies shall be located outside of a defined setback from the centre line of a number of streets. The purpose of this section is to facilitate the expansion of the subject streets, by restricting the location of any building or structure within the area to be dedicated for road expansion. As fences and retaining walls can be easily removed or relocated at the time of road expansion, it is recommended that these structures be permitted within the required building line setbacks.
- Section 407.5(1) of the Zoning Bylaw prohibits the location of a building or structure in the M7 Marine District 2 within 6.0 m (19.69 ft.) of a property's boundaries, except where the lot is abutting another M7-zoned lot, the setback may be reduced to 3.0 m (9.84 ft.). This section is not intended to restrict the location of security fences, screening or retaining walls on property lines, or within the required yards.
- section 509.5 of the Zoning Bylaw prohibits the location of a building or structure in the P9 Marine District 1 within 9.0 m (29.53 ft.) of a property's boundaries, except on a lot adjoining the High Water Mark where no setback is required. This section is not intended to restrict the location of security fences, screening or retaining walls on property lines or within the required yards.

**Inclusion of “fence and retaining wall” in Section 700.2(2)**

Section 700.2(2) lists all the requirements of the Zoning Bylaw which may be varied under a CD Comprehensive Development District, such as parking and loading, screening and landscaping. Considering that fences and retaining walls are generally provided for screening and landscaping purposes, it is recommended that the term “fence and retaining wall” be added to this section of the Zoning Bylaw. Should Council adopt this recommendation, the location and height of fences and retaining walls may be varied under a CD rezoning application.

**Inclusion of “retaining wall” in Section 700.3(1)(e)**

Section 700.3(1) of the Zoning Bylaw provides a list of information that is required to be provided in a comprehensive plan as part of a CD rezoning process. Subsection (e) includes “the location and treatment of open spaces, landscaping, fences and walls”. Considering that “fences” will include all walls that are not part of a building and provide screening and enclosure, it is recommended that the term “wall” be replaced with “retaining wall” in Section 700.3(1)(e) of the Zoning Bylaw. Should Council adopt this recommendation, it will be required to indicate the location of retaining walls on a comprehensive plan.

**Amendment to the definition of “Height”**

Section 3 of the Zoning Bylaw defines “height” as a vertical dimension of a building or structure measured in accordance with Section 6.4. Fences and retaining walls are recommended to be defined as a structure with their height subject to the new Sections 6.14.1 and 6.14.2 of the Zoning Bylaw. To include all references to buildings and structures’ height requirements under the definition of “height”, it is recommended that the term “section 6.4” be replaced with “this Bylaw”.

**3.3 Recommended Zoning Bylaw Amendments**

1. **THAT** the definition of “Fence” and “Retaining Wall” be added to Section 3 of the Zoning Bylaw with wording the same or similar to the following:

*“FENCE” means a structure, not being a building, used as an enclosure or for screening purposes around all or part of a lot.*

*“RETAINING WALL” means a structure, not being a building, designed to hold back, stabilize or support water, soil, rocks, or similar geotechnical materials. For the purpose of this bylaw, a retaining structure, not being a building, which does not have an exposed face and which is designed to hold back water shall not be considered a retaining wall.*

2. **THAT** the definition of “Building, Completely Enclosed” in Section 3 of the Zoning Bylaw be amended by adding the text “excluding fences and retaining walls” after the text “structures.”
3. **THAT** the definition of “Height” in Section 3 of the Zoning Bylaw be amended with wording the same or similar to the following:

*“HEIGHT” means the vertical dimension of a building or structure measured in accordance with this Bylaw.*

4. **THAT** the definition of “Lot Coverage” in Section 3 of the Zoning Bylaw be amended by adding the bolded text as follows:

- (a) *belt courses, cornices, eaves, gutters, sills or other similar ornamental features;*
- (b) *bay windows;*
- (c) *chimneys, fire escapes and steps;*
- (d) *canopies and sunshades;*
- (e) *terraces;*
- (f) *balconies;*



- (g) *uncovered swimming pools;*
  - (h) *fences and retaining walls; and*
  - (i) *parking areas that are:*
    - (i) *underground, or*
    - (ii) *open-sided and roofless.*
5. **THAT** the definition of “Screening” in Section 3 of the Zoning Bylaw be amended by deleting the text “wall.”
6. **THAT** the definition of “Structure” in Section 3 of the Zoning Bylaw be amended with wording the same or similar to the following:
- “STRUCTURE” means anything constructed or erected, the use of which requires location on the ground or attachment to something having location on the ground.*
7. **THAT** Section 6.2(2) of the Zoning Bylaw be amended with wording the same or similar to the following:
- (2) *No accessory building or structure, with the exception of fences and retaining walls, shall be located in any required front, or side yard, except as provided for in Sections 6.6 and 6.12 of this Bylaw.*
8. **THAT** Section 6.6 of the Zoning Bylaw be amended by adding the bolded text in the heading as follows:
- Accessory Buildings, **Structures**, and Uses:*
9. **THAT** Sections 6.6(1)(a), 6.6(1)(b), 407.5(1), 509.5 of the Zoning Bylaw be amended by adding the text “excluding fences and retaining walls” after the text “structure”.
10. **THAT** Section 6.6(1)(e) be added to the Zoning Bylaw with wording the same or similar to the following:
- A structure listed in Section 6.12(1)(f) that projects into a required front, or side yard shall comply with the height requirements prescribed for fences within the zoning district in which it is located.*
11. **THAT** Section 6.6(2)(h) be added to the Zoning Bylaw with wording the same or similar to the following:
- (h) *In an R and RM District, an accessory structure not being a building, excluding a fence or a retaining wall, located outside of a required front yard or side yard, shall not exceed 4.6 m (15.1 ft.) in height.*

12. **THAT** Section 6.12(1) of the Zoning Bylaw be amended by adding the bolded text as follows:

The following features **and structures** may project into a required front, side or rear yard:

13. **THAT** Sections 6.12(1)(e), 404.2(3), and 404.2(4) of the Zoning Bylaw be amended by replacing the text “6.14” with “6.14.2.”
14. **THAT** Section 6.12(1)(k) be added to the Zoning Bylaw with wording the same or similar to the following:
- (k) Utility, fire and servicing equipment.*
15. **THAT** Section 6.13(1) of the Zoning Bylaw be amended by replacing the text “no fence, wall or structure” with “no structure.”
16. **THAT** Section 6.14 of the Burnaby Zoning Bylaw be repealed and replaced with Sections 6.14.1 and 6.14.2, with wording the same or similar to the following:

**6.14.1 Retaining Walls:**

- (1) In all zoning districts, retaining walls shall not exceed 1.2 m (3.94 ft.) in height, as measured at any point along the retaining wall.*
- (2) The height of a retaining wall shall be measured vertically from the lower of natural or finished grade at the base of the wall, to the surface of the ground or water which it supports.*
- (3) The shortest horizontal distance between the outer face of two adjacent retaining walls shall not be less than the height of the retaining wall with greater height.*
- (4) The horizontal distance between the adjacent retaining walls shall be relatively level, suitably landscaped, and properly maintained.*
- (5) Subsections (1), (3), and (4) of Section 6.14.1 shall not apply to retaining walls that are required:*
- (a) as a condition of subdivision approval; or*
- (b) to exclusively provide access or light to a basement or cellar.*
- (6) Any portion of a retaining wall that projects above the surface of the ground or water which it supports shall be considered a fence, and be subject to Section 6.14.2 of this Bylaw.*

#### **6.14.2 Fences:**

- (1) *Subject to the vision clearance provisions of Section 6.13, the following height limitations shall apply to fences:*

  - (a) *In all zoning districts, except for required screening and outdoor play area enclosures, fences not exceeding 1.07 m (3.51 ft.) in height may be located within a required front yard.*
  - (b) *In all zoning districts, except A, C4 and M Districts, fences not exceeding 1.8 m (5.91 ft.) in height may be located anywhere on a lot to the rear of a required front yard.*
  - (c) *In A, C4 and M Districts, fences not exceeding 2.4 m (7.87 ft.) in height may be located anywhere on a lot to the rear of a required front yard.*
  - (d) *Notwithstanding paragraph (c) of Section 6.14.2(1), in M Districts, any fence located outside of the required yards shall not exceed the maximum height prescribed for principal buildings within the zoning district in which it is located.*
  - (e) *Notwithstanding paragraphs (a), (b), (c) of Section 6.14.2(1), arbors, archways, gates and similar structures which serve as an entrance to a property shall not exceed 2.6 m (8.53 ft.) in height, and 1.8 m (5.91 ft.) in width.*
- (2) *The height of a fence shall be determined by measurement from average grade within 900 mm (2.95 ft.) of both sides of such fence to the highest point of the fence. Where a fence is erected above a retaining wall along a property line, any portion of ground located beyond the retaining wall shall not be included in the calculation of average grade.*
- (3) *Notwithstanding subsection (1), and subject to the vision clearance provisions of Section 6.13, open mesh and chain link type fences erected on cemeteries, public parks, schools, and in the M or P Districts shall not exceed a height of 3.5 m (11.48 ft.). The addition of barbed wire, razor wire, or similar materials with sharp projections to such fences shall be permitted in the M District, and for correctional institutions permitted in the P7 District.*
- (4) *Subsection (1) shall not apply to fences that delineate the area used as sports fields, golf courses, golf driving ranges, tennis courts, and other similar uses. Such fences shall be subject to the vision clearance provisions of Section 6.13.*
- (5) *Barbed wire, razor wire, or similar materials with sharp projections shall not be used in the construction of a fence, except for correctional institutions permitted in the P7 District, or in the M Districts.*

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- (6) *Where a fence is located above a retaining wall, the fence shall be constructed with materials different from that used in the construction of the retaining wall, and in a manner that is visually dissimilar to the retaining wall.*
17. **THAT** Sections 6.15(2)(b), 401.1(17)(f), 403.1(15)(a)(ii), 403.1(15)(a)(iii), 800.7(4), and 900.6(3) be amended by deleting the text “or wall” or “walls”, as applicable.
18. **THAT** Section 6.16(7) of the Zoning Bylaw be amended by adding the bolded text with wording the same or similar to the following:
- (7) *Nothing in this section prohibits the erection of a permitted street canopy, **fence, or retaining wall.***
19. **THAT** Section 110.12(1) of the Zoning Bylaw be amended by replacing the text “section 6.14(5)(b)” with “section 6.14.2(1)(b).”
20. **THAT** Section 110.12(2) of the Zoning Bylaw be amended with wording the same or similar to the following:
- (2) *Notwithstanding Sections 6.14.2(1)(a), and 6.14.2(1)(e), no fence or other similar structure is permitted in front of the face of the principal building facing the front yard, except two or less pillars, each of which does not exceed 0.6 m (1.97 ft.) in width or 1.5 m (4.92 ft.) in height.*
21. **THAT** Section 700.2(2) of the Zoning Bylaw be amended by adding the bolded text with wording the same or similar to the following:
- (2) *Exceptions to the applicable parking and loading, carwash stall, screening and landscaping, **fence and retaining wall**, minimum frontage of a business, projection into required yards and bulk regulations of this Bylaw may be permitted, provided that the floor area ratio and density for the development as a whole are in conformity with the applicable requirements of this Bylaw, and that such exception results in an improved relationship between the various parts of the proposed development.*
22. **THAT** the term “walls” in Section 700.3(1)(e) (CD District) of the Zoning Bylaw be replaced with “retaining walls.”

#### **4.0 PROPOSED BUILDING BYLAW AMENDMENTS**

##### **4.1 Current Building Bylaw Requirements for Fences and Retaining Walls**

Fences and free-standing walls may be constructed without a Building Permit in the City of Burnaby. However, if a builder chooses to document fences or walls under a Building Permit for a single family dwelling, staff reviews the fence height to ensure compliance with the Zoning Bylaw.

Other landscape features including retaining walls may also be constructed without a Building Permit. An exception to this practice occurs when a Building Permit submission incorporates the proposed retaining walls. In such cases, the retaining walls are reviewed as part of the Building Permit approval process for the following reasons:

- the retaining walls may be required to support the foundation of the building, and as such, are considered an extension of the building's foundations; and
- the permit drawings could be interpreted as authorizing the construction of potentially non-compliant or unsafe retaining walls. An example is when a builder chooses to document retaining walls under a single family dwelling Building Permit. In such cases, staff reviews the retaining walls for compliance with the Zoning Bylaw and also requires that the retaining walls be captured under the umbrella of the structural engineer's letter of assurance. Because these practices are not readily apparent to applicants for Building Permits, they can result in delays in Building Permit processing.

#### **4.2 Proposed Approach for Fences and Free-Standing Walls**

Considering the absence of a permitting process for the construction of fences and free-standing walls does not give rise to any public safety concerns, it is recommended that the current procedure remain unchanged.

#### **4.3 Proposed Building Bylaw Requirements for Retaining Walls**

Retaining walls should be designed to withstand the loads imposed by the materials they retain, by the surcharge from the buildings or structures above, and by an earthquake. Retaining walls that support soil should also be adequately drained to prevent structural failure due to hydrostatic pressure.

The review of other municipalities' requirements regarding the construction of retaining walls indicates that most local governments in BC require a Building Permit for retaining structures that are 1.2 m (3.94 ft.) in height or greater. Some local governments also require that the horizontal distance between adjacent retaining walls be twice the height of the retaining wall. In several jurisdictions, retaining structures may exceed the general maximum height of 1.2 m (3.94 ft.) subject to a development variance permit and involvement of a professional engineer in the design and construction of the retaining structures.

The "Professional Practice Guidelines - Retaining Wall Design" issued by the Engineers & Geoscientists BC recommend that geotechnical and structural design be required for retaining walls that are over 1.2 m (3.94 ft.) in height, and for terraced retaining walls that are steeper than the ratio of 1:1 vertical to horizontal distance to ensure safety.

To ensure safety of retaining structures throughout the City, it is recommended that retaining walls greater than 1.2 m (3.94 ft.) in height, and terracing incorporating adjacent retaining walls, any of which are greater than 1.2 m (3.94 ft.) in height or are terraced at steeper than the ratio of 1:1

vertical to horizontal, be subject to a Building Permit application. It is generally recognized that it is simple and safe to construct retaining walls 1.2 m (3.94 ft.) or less in height without certified engineering drawings.

Due to the complexity of the design and construction of retaining walls, site conditions including external loading conditions, soil bearing capacity and slope stability, and limited access for maintenance and repair, it is also recommended that the Chief Building Inspector be given authority to require a retaining wall be subject to a Building Permit application and professional engineer involvement in the design and construction of the retaining wall if in the opinion of the Chief Building Inspector such a retaining wall may affect the safety of the subject property or the adjacent properties.

It is proposed that a new definition for “retaining wall” be added to the Building Bylaw and that the definition of “structure”, which currently excludes all retaining walls, be amended to exclude only those retaining walls that are not subject to a Building Permit application.

Section 11(1) of the Building Bylaw sets out certain circumstances where the design and field review services of a registered professional, supported by letters of assurance, are required. It is also proposed to require a professional engineer be involved in the design and construction of retaining walls that are subject to a Building Permit application.

#### **4.4 Recommended Building Bylaw Amendments**

1. **THAT** Section 3 of the Building Bylaw be amended by adding the definition of “Retaining Wall” with wording the same or similar to the following:

***“RETAINING WALL” means a structure designed to hold back, stabilize or support water, soil, rocks, or similar geotechnical materials.***

2. **THAT** the definition of “Structure” in Section 3 of the Building Bylaw be amended by replacing the text “retaining walls” with “retaining walls other than those retaining walls described in sections 11(1)(c)(i), (ii), (iii), (iv) or (v)”
3. **THAT** Section 11(1)(c) be added to the Building Bylaw with wording the same or similar to the following:

(c) a retaining wall:

- (i) that is greater than 1.2 m (3.94 ft.) in height; or
- (ii) that is part of a group of two or more terraced retaining walls, any of which is greater than 1.2 m (3.94 ft) in height; or
- (iii) that is terraced at a ratio steeper than 1 to 1 vertical to horizontal with an adjacent retaining wall; or

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- (iv) that is part of a group of two or more terraced retaining walls, where the average slope of the entire group of terraced retaining walls is steeper than the ratio of 1 to 1 vertical to horizontal; or
- (v) in respect of which the Building Inspector considers that the site conditions, size or complexity of the design or construction of the retaining wall or group of retaining walls or an aspect of the retaining wall or group of retaining walls, so warrant to ensure the safety and protection of persons, the property or adjacent properties.

## 5.0 CONCLUSION

The above Zoning Bylaw text amendments are proposed in order to clarify certain aspects of zoning requirements, make amendments in support of existing practices and Council policies, and achieve other regulatory changes. The above Building Bylaw text amendments are proposed to impose a Building Permit requirement for retaining walls that meet certain criteria. It is recommended that Council approve the above proposed amendments, as outlined in Sections 3.0 and 4.0 of this report, and direct that the Zoning Bylaw text amendment be advanced to a future Public Hearing. The Building Bylaw amendments do not require a Public Hearing and will be brought forward to the next Council meeting for consideration and bylaw readings.

  
E. W. Kozak, Director  
PLANNING AND BUILDING

PS/PK:tn

cc: City Manager  
Chief Building Inspector  
City Clerk

Director Parks, Recreation and Cultural Services  
City Solicitor